

X/CE0317/004

Semester:	III	Branch:	CE/CSE/IT
<b>END SEMESTER EXAMINATION – November 2022</b>			
Subject Code:	CF0317	Subject Name:	Database Management System
Date:	13/12/2022	Time:	2.00PM TO 5.00 PM
Day:	Tuesday	Total Marks:	100

**Instructions:**

1. Attempt all questions
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicates full marks

Q.1	A	1. Define DBMS. Explain Database-System Applications.	06
		2. What are the main functions of a database administrator?	04
	B	1. Draw ER diagram for university database consisting four entities Department, Course, Student and instructor. Consider the following constraints: <ul style="list-style-type: none"> <li>▪ A university has many departments.</li> <li>▪ Each department has multiple instructors.</li> <li>▪ An instructor belongs to only one department.</li> <li>▪ Each department offers multiple courses</li> <li>▪ Each course is taught by a single instructor.</li> <li>▪ A student may enroll for many courses offered by different departments.</li> </ul>	06
		2. Explain any two constraints in database with suitable example	04
Q.2	A	1. Explain insert, update and delete anomalies in database with example.	06
		2. What is normalization? Explain 2NF with example.	04
	B	1. Write Relational Algebra syntax for the given queries using the following Database. employee (person_name, street, city) works (person_name, company_name, salary) company (company_name, city)	06

		1) Find the names of all employees who live in city 'Ahmedabad'. 2) Find the names of all employees whose salary is greater than 1,00,000. 3) Find the names and cities of residence of all employees who work for "First Bank Corporation". 4) Find the names, street address, and cities of residence of all employees who work for "First Bank Corporation" and earn more than 10,000.	
		2. Consider the relation $R = \{A, B, C, D, E\}$ and the set of functional dependencies $F = \{A \rightarrow BC, CD \rightarrow E, B \rightarrow D, E \rightarrow A\}$ . Find the candidate keys for R. (Atleast four in case of many)	04
Q.3	A	1. What is a transaction? Explain the ACID properties.	06
		2. What are the problems of concurrent transactions? Explain any one problem with example.	04
	B	1. What is system recovery? Explain log-based recovery.	06
		2. Explain two phase commit protocol.	04
Q.4	A	1. Explain DDL, DML and DCL with example.	06
		2. Explain any two date and string functions of SQL with example.	04
	B	1. We have following relations: EMP(empno, ename, jobtitle, hiredate, salary, deptno) DEPT(deptno, deptname, loc) Answer the following queries in SQL. 1) Find all the employee whose empno is less than 100 and salary more than 25000. 2) Display empno, ename, deptno and deptname. 3) Delete the employee having minimum salary.	06
		2. What is ON DELETE CASCADE in SQL? Explain with example.	04
Q.5		Any Four (05*4=20)	20
	A	Explain conflict serializability with example.	05
	B	Define Locking. Explain two phase locking protocol.	05
	C	What is deadlock? Explain deadlock detection mechanism.	05
	D	When Join is used in SQL? Explain Natural join and Full Outer join with SQL syntax.	05
	E	What is the view? Differentiate between view and table. Give the advantages of view.	05
	F	Explain cursor and its types.	05